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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte
DAVID A. SCHECHTER and KRISTIN D. JOHNSON

Appeal 2008-4552
Application 10/712,486
Technology Center 3700

Decided: October 10, 2008

Before LORA M. GREEN, RICHARD M. LEBOVITZ, and JEFFREY N. FREDMAN, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a tissue sealing instrument which the Examiner has rejected as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Background

"A hemostat or forceps is a simple plier-like tool which uses mechanical action between its jaws to constrict vessels and is commonly used in open surgical procedures to grasp, dissect and/or clamp tissue" (Spec. 1). The Specification notes that "[e]lectrosurgical forceps utilize both mechanical clamping action and electrical energy to effect hemostasis by heating the tissue and blood vessels to coagulate, cauterize and/or seal" (Spec. 1).

Statement of the Case

The Claims

Claims 1-5, 7, 8, and 21-23 are on appeal[1]. We will focus on claim 1, which is representative and reads as follows:

1. A tissue or vessel sealing instrument, comprising:
a housing having a shaft attached thereto; and
an end effector assembly attached to a distal end of the shaft, the end effector assembly including first and second jaw members attached thereto made from a substantially rigid material, the jaw members being movable relative to one another from a first position for approximating tissue to at least one additional position for grasping tissue therebetween;
each of the jaw members including an elastomeric material disposed on an inner facing tissue contacting surface thereof, each of the elastomeric materials including an electrode disposed therein, the electrodes being offset a distance X relative to one another such that when the jaw members are closed about the tissue and when the electrodes are activated, electrosurgical energy flows through the tissue in a generally coplanar manner relative to the tissue contacting surfaces, the elastomeric material being adapted to

[1] Claims 6 and 9-20 were withdrawn by the Examiner and therefore not subject to our consideration (App. Br. 2).

compress or deflect about 0.001 inches to about 0.015 inches when the force used to close the jaw members is between about 40 psi to about 230 psi; and

wherein the substantially rigid material of the jaw members resists deformation when the force used to close the jaw members is between about 40 psi to about 230 psi.

The prior art

The Examiner relies on the following prior art references to show unpatentability:

Hooven	US 6,086,586	Jul. 11, 2000
Phan	US 6,932,816 B2	Aug. 23, 2005

The issue

The rejection as presented by the Examiner is as follows:

Claim 1-5, 7, 8, and 21-23 stand rejected under 35 U.S.C. § 103(a), as being obvious over Phan and Hooven (Ans[2]. 3).

35 U.S.C. § 103(a) rejection over Phan and Hooven

The Examiner contends that "Phan discloses a tissue or vessel sealing instrument comprising . . . a housing 242 having a shaft . . . an end effector 22, 24, assembly . . . including first 22 and second 24 jaw members . . . the jaw members being movable . . . each of the jaw members including an elastomeric material 106 disposed on an inner facing tissue contacting surface" (Ans. 3-4). The Examiner argues that "when tissue is grasped, particularly at the closure pressure asserted by applicant, that tissue will inherently be squeezed and conform to the portion of the elastomeric base (106) immediately surrounding the electrode (108)" (Ans. 5).

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[2] We refer to the Examiner's Answer mailed February 20, 2008.

The Examiner also argues that "the Phan base member (108) clearly surrounds the electrode, at least to the same extent that applicant's base member surrounds the electrode as shown in the Figures" (Ans. 6).

Appellants argue that "the 'elastomeric material' of Phan is not disposed on an **inner facing tissue contacting** surface" (App. Br[3]. 11). Appellants further contend that the "elastomeric base member 106 of Phan is not disposed on a tissue contacting surface. . . . Rather, the electrode 108 of Phan (vis-à-vis its base member 106) is disposed on a tissue contacting surface" (App. Br. 12). Appellants argue that "[a]ccording to [the Examiner's] interpretation of 'tissue contacting surface,' any surface of any jaw member would have the ability to contact tissue. . . . Such an interpretation is clearly overly broad and is thus improper" (Reply Br[4]. 6).

Appellants further argue that "the base member 106 of Phan, does not *encompass* the electrode 108. . . . That is, the elastomeric base member 106 does not 'form a circle or ring around,' or 'surround' the electrode 108" (App. Br. 14, citing American Heritage Dictionary).

In view of these apparently conflicting positions, we frame the obviousness issue before us as follows:

Would it have been obvious to an ordinary artisan to modify the teachings of Phan with the electrode arrangement of Hooven to obtain a tissue sealing instrument?

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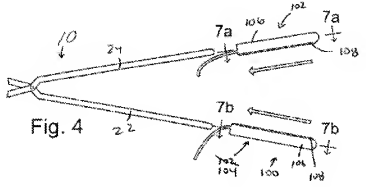
[3] We refer to the Appeal Brief filed January 7, 2008.
[4] We refer to the Reply Brief filed April 16, 2008.

Findings of Fact (FF)

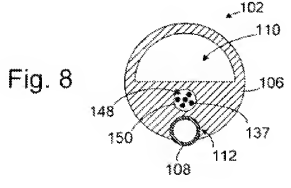
1. Phan teaches "[e]nergy transmission assemblies . . . may be used to convert a conventional clamp into a tissue coagulation device" (Phan, col. 5, ll. 55-57).

2. Phan teaches the device disclosed in Figure 4, reproduced below:



"FIG. **4** is plan of a pair of energy transmission assemblies in accordance with a preferred embodiment of a present invention" (Phan, col. 4, ll. 5-7).

3. Phan teaches the device disclosed in Figure 8, reproduced below:



"FIG. **8** is a section view" (Phan, col. 4, l. 17).

4. Phan teaches that the "clamp **10** includes a pair of rigid arms **12** and **14** that are pivotably connected to one another by a pin **16**" (Phan, col. 5, ll. 63-65).

5. Phan teaches that "a bi-polar tissue coagulation device [which] includes a pair of energy transmission assemblies **102** and **104**. Each of the energy transmission assemblies includes a base member **106** that may be removably secured to one of the clamp members **22** and **24** and an energy transmission device 108" (Phan, col. 6, ll. 16-21).

6. Phan teaches that the "exemplary base members **106** are preferably formed from a soft, resilient, low durometer material that is electrically insulating. Suitable materials include polyurethane, silicone and polyurethane/silicone blends" (Phan, col. 6, ll. 32-36).

7. The Examiner states that "[s]ince the elastomeric and rigid materials of Phan are identical to applicant's disclosed materials, they are deemed to inherently, or at least obviously, possess the same material properties at the claimed compression force range" (Ans. 4).

8. Hooven teaches

> this configuration of insulating members and electrodes provides for a current flow (as shown by the double dash headed arrows) through the tissue **54** between the electrodes of opposite polarity. There is no current flow through the tissue that is not held between the grasper jaws, and the current flow is at its maximum density between the tissue contacting surfaces of the jaws. Accordingly, tissue is coagulated first along the center of the jaws and, as the impedance of the tissue increases due to its coagulation, the current flow between the electrodes is cut-off.

(Hooven, col. 4, ll. 30-40.)

Discussion of 35 U.S.C. § 103(a) rejection over Phan and Hooven

Phan teaches a surgical instrument which comprises a housing with a shaft (FF 1-2). Phan teaches that the shaft has an end effector assembly composed of two jaw members made from a rigid material which are movable to permit the assembly to grasp tissue between the jaws (FF 2, 4). Phan teaches that each of the jaw members has rigid and elastomeric materials which satisfy the compression requirements (FF 6, 7). Phan teaches that the jaw members also include electrodes (FF 5). Hooven teaches placement of electrodes such that when the jaw members are closed on tissue and the electrodes are activated, electrosurgical energy flows coplanar into the tissue (FF 8).

In analyzing the claim language, we give claim phrases their broadest reasonable interpretation. *See, e.g., In re Hyatt,* 211 F.3d 1367, 1372 (Fed. Cir. 2000) ("[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification."). The argued differences between claim 1 and the combination of Phan and Hooven is whether the elastomeric material of Phan is on an "inner facing tissue contacting surface thereof" (Claim 1).

We agree with the Examiner that, consonant with the broadest reasonable interpretation of claim 1, the device of Phan satisfies the limitation that the elastomeric material is on a "tissue contacting surface". As the Examiner noted, "when tissue is grasped, particularly at the closure pressure asserted by applicant, that tissue will inherently be squeezed and conform to the portion of the elastomeric base (106) immediately

surrounding the electrode (108)" (Ans. 5). This inherent resilience of tissue is recognized by Appellants' Specification, which notes that:

> [m]any of these instruments rely on clamping pressure alone to procure proper sealing thickness . . . if the tissue is initially thin or if too much force is applied, there is a possibility that the two electrically conductive surfaces of the instrument will touch . . . if the tissue is thick, over compression may lead to tissue vaporization and a less reliable seal may be created

(Spec. 4). Appellants' Specification recognizes that "over compression" and "too much force" will cause the tissue to be squeezed and conform to the force (*see* Spec. 4).

In our opinion, figure 8 of Phan clearly supports the conclusion that the elastomeric material 106 is disposed on an "inner facing tissue contacting surface" as required by claim 1. The electrode 108 is nearly flush with the elastomeric material 106 and when compressible tissue is grasped between electrodes 108 on the facing jaws, the elastomeric material 106 will contact that compressed tissue. Therefore, the Examiner has reasonably established a prima facie case of unpatentability at least based on inherency, thereby shifting to Appellants the burden of proving that the jaws of Phan would not have met the "tissue contacting" requirement. *See In re Best*, 562 F.2d 1252, 1255 (CCPA 1977)("Whether the rejection is based on 'inherency' under 35 U.S.C. § 102, on 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products"). Appellants have not provided any evidence which would suggest otherwise.

We are not persuaded by Appellants' argument that "[a]ccording to [the Examiner's] interpretation of 'tissue contacting surface,' any surface of any jaw member would have the ability to contact tissue (*e.g.*, upon entry into a surgical site, during manipulation of the jaw members, during compression of tissue, and during removable [removal?] of the jaw members from tissue)" (Reply Br. 6). The Examiner is not suggesting an interpretation with the breadth proposed by Appellants, but rather only that during compression of tissue during the sealing operation, the tissue would contact an inner facing surface of the elastomeric material 106 of Phan (*see* Ans. 5; FF 3, 7). We conclude that the Examiner reasonably interprets the claim limitation of "tissue contacting surface" as inherently satisfied by Phan.

We also do not find persuasive Appellants' argument that "the base member 106 of Phan, does not *encompass* the electrode 108. . . . That is, the elastomeric base member 106 does not 'form a circle or ring around,' or 'surround' the electrode 108" (App. Br. 14, citing American Heritage Dictionary). We find that claim 1 does not recite the word "encompass" regarding the relationship between the base member and the electrode (*see* Claim 1), nor do the Appellants identify that limitation in claim 1. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments"). *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) ("Absent claim language carrying a narrow meaning, the PTO should only

limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition").

Appellants also contend that "the orientation of electrodes in Hooven results in a **non-uniform temperature distribution in which temperature is greater in a region centrally located between the electrodes**" (Reply Br. 9). Appellants conclude that

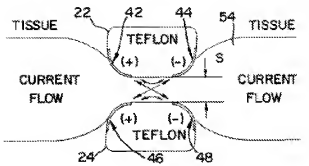
> Hooven does not teach, disclose or suggest teach jaw members having electrodes that are 'offset a distance X relative to one another such that when the jaw members are closed about the tissue and when the electrodes are activated, electrosurgical energy flows through the tissue in a generally coplanar manner relative to the tissue contacting surfaces,' as required by Claims 1 and 21-23.

(Reply Br. 10.)

> Hooven teaches regarding the tissue grasping device that
>
> this configuration of insulating members and electrodes provides for a current flow (as shown by the double dash headed arrows) through the tissue **54** between the electrodes of opposite polarity. There is no current flow through the tissue that is not held between the grasper jaws, and the current flow is at its maximum density between the tissue contacting surfaces of the jaws

(Hooven, col. 4, ll. 30-37). Figure 6 of Hooven is reproduced below:

FIG. 6



"FIG. **6** is a cross-sectional view of the jaws of the inventive bipolar tissue graspers, with uncoagulated tissue disposed therebetween, showing the path of current flow between the two jaw members" (Hooven, col. 3, ll. 16-19).

We find that Hooven clearly teaches electrodes which are offset at a distance X, when the jaw members are closed about the tissue, where X is not required to be any specific distance in the claim, as shown in Figure 6 above (*see* FF 8). We further find that Hooven teaches that the electrosurgical energy flows through the tissue in a coplanar manner relative to the tissue contacting surfaces as shown in Figure 6 above (FF 8). While Appellants may be correct that Hooven results in non-uniform temperature distribution, there is no limitation in claim 1 which requires any particular temperature distribution.

We therefore conclude that Hooven is properly relied upon by the Examiner for teaching electrodes offset at a distance X which permit electrosurgical energy to flow through tissue in a coplanar manner. We agree with the Examiner that "it would have been obvious . . . to have arranged electrodes on the device of Phan . . . in view of . . . Hooven so that the flow of current between the electrodes naturally stops when coagulation is complete to prevent thermal damage due to over-coagulation outside the jaws" (Ans. 4-5). In *KSR*, the Supreme Court indicated that "[w]hen a work

is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." *KSR Int'l v. Teleflex Inc.,* 127 S. Ct. 1727, 1740 (2007). In the instant case, using Hooven's electrodes with the grasping device of Phan would have resulted in a known and predictable variant tissue coagulation device (*see* FF 1-8).

CONCLUSION

In summary, we affirm the rejection of claim 1 as obvious over Phan and Hooven. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejections of claims 2-5, 7, 8, and 21-23 as these claims were not argued separately.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

AFFIRMED

cdc

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